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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/709,622	05/18/2004	Hiroshi Nogami	001425126	3621

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EXAMINER

LUND, JEFFRIE ROBERT

ART UNIT	PAPER NUMBER
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1763

DATE MAILED: 10/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/709,622	Applicant(s) NOGAMI, HIROSHI	
	Examiner Jeffrie R. Lund	Art Unit 1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 May 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 10/043,190.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: in paragraph 46 line 4 ""lower vessel 21b" should read --lower vessel 12b--.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being obvious over Xu et al, US Patent Application publication 2001/0042512 A1 in view of Kasai et al, US Patent 6,436,193 B1 and Lee et al US Patent 6,436,193.

Xu et al teaches: a vacuum vessel 12 separated into two chambers, the first one 15 of the two chambers containing a radio-frequency electrode 20; and the second one 16 of the two chambers containing a substrate support mechanism 17 for mounting a substrate 11 wherein said vacuum vessel is separated by an electrically conductive partitioning section 14. The partitioning section includes: a plurality of through-holes 25 to allow communication between the first chamber and second chamber; and an interior space 24 for receiving a reactive gas, the interior space separated from the first chamber and communicating with the second chamber through a plurality of diffusion holes 26. (Entire document)

Xu et al differs from the present invention in that Xu et al does not teach a heater for heating the electrically conducting partitioning section, or that the partitioning section is mounted to the vacuum vessel using screws and an electrically conductive spiral shield to achieve electrical contact.

Kasai et al teaches that showerheads (i.e. partitioning section) can be heated (column 10 lines 12-18).

Lee et al teaches that conductive O-rings 62 are used to electrically couple an electrode to the walls of the vacuum chamber. (Entire document)

Screws are well known in the art and commonly used to attach parts together.

The motivation for adding a heater to the partition of Xu et al as taught by Kasai et al is to control the temperature of the processing gas to prevent condensation of the processing gas or heat the processing gas to the desired temperature prior to the gas entering the processing vessel.

The motivation for using the electrically conductive O-rings (electrically conductive spiral shield) of Lee et al to connect the vacuum vessel and conductive plate of Xu et al is to air-tightly connect and electrically couple the vacuum vessel and conductive plate.

The motivation for using screws to attach the conductive plate to the vacuum walls is to provide the required means of holding the conductive plate to the walls of the vacuum vessel, but not disclosed by Xu et al. Screws and bolts are commonly used in the art to removably attach parts.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to add a heater to the conductive plate, and use conductive O-ring and screws to electrically couple the conductive plate to the vacuum vessel walls.

Xu et al constitutes prior art under 35 U.S.C. 102(a and e). Therefore:

- a. Applicant cannot rely upon the foreign priority papers to overcome this rejection (based on 102(a)) because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.
- b. The applied reference has a common inventor and assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the

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invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(I)(1) and § 706.02(I)(2).

4. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being obvious over Ko, US Patent 6,427,623 B2 in view of Kasai et al, US Patent 6,436,193 B1 and Lee et al US Patent 6,436,193.

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(I)(1) and § 706.02(I)(2).

Ko teaches: a vacuum vessel 12 separated into two chambers, the first one 15 of the two chambers containing a radio-frequency electrode 20; and the second one 16 of the two chambers containing a substrate support mechanism 17 for mounting a substrate 11 wherein said vacuum vessel is separated by an electrically conductive partitioning section 14. The partitioning section includes: a plurality of through-holes 25 to allow communication between the first chamber and second chamber; and an interior space 24 for receiving a reactive gas, the interior space separated from the first chamber and communicating with the second chamber through a plurality of diffusion holes 26. (Entire document)

Ko differs from the present invention in that Ko does not teach a heater for heating the electrically conducting partitioning section, or that the partitioning section is mounted to the vacuum vessel using screws and an electrically conductive spiral shield to achieve electrical contact.

Kasai et al teaches that showerheads (i.e. partitioning section) can be heated (column 10 lines 12-18).

Lee et al teaches that conductive O-rings 62 are used to electrically couple an electrode to the walls of the vacuum chamber. (Entire document)

Screws are well known in the art and commonly used to attach parts together.

The motivation for adding a heater to the partition of Ko as taught by Kasai et al is to control the temperature of the processing gas to prevent condensation of the processing gas or heat the processing gas to the desired temperature prior to the gas entering the processing vessel.

The motivation for using the electrically conductive O-rings (electrically conductive spiral shield) of Lee et al to connect the vacuum vessel and conductive plate of Ko is to air-tightly connect and electrically couple the vacuum vessel and conductive plate.

The motivation for using screws to attach the conductive plate to the vacuum walls is to provide the required means of holding the conductive plate to the walls of the vacuum vessel, but not disclosed by Ko. Screws and bolts are commonly used in the art to removably attach parts.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to add a heater to the conductive plate, and use conductive O-ring and screws to electrically couple the conductive plate to the vacuum vessel walls.

Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

5. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being obvious over Tanaka et al, US Patent Application Publication 2002/0152960 A1, in view of Kasai et al, US Patent 6,436,193 B1 and Lee et al US Patent 6,436,193.

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an

invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(I)(1) and § 706.02(I)(2).

Tanaka et al teaches: a vacuum vessel 22 separated into two chambers, the first one 25 of the two chambers containing a radio-frequency electrode 30; and the second one 26 of the two chambers containing a substrate support mechanism 27 for mounting a substrate 21 wherein said vacuum vessel is separated by an electrically conductive partitioning section 24. The partitioning section includes: a plurality of through-holes 8 to allow communication between the first chamber and second chamber; and an interior space 6 for receiving a reactive gas, the interior space separated from the first chamber and communicating with the second chamber through a plurality of diffusion holes 7.

(Entire document)

Tanaka et al differs from the present invention in that Tanaka et al does not teach a heater for heating the electrically conducting partitioning section, or that the

partitioning section is mounted to the vacuum vessel using screws and an electrically conductive spiral shield to achieve electrical contact.

Kasai et al teaches that showerheads (i.e. partitioning section) can be heated (column 10 lines 12-18).

Lee et al teaches that conductive O-rings 62 are used to electrically couple an electrode to the walls of the vacuum chamber. (Entire document)

Screws are well known in the art and commonly used to attach parts together.

The motivation for adding a heater to the partition of Tanaka et al as taught by Kasai et al is to control the temperature of the processing gas to prevent condensation of the processing gas or heat the processing gas to the desired temperature prior to the gas entering the processing vessel.

The motivation for using the electrically conductive O-rings (electrically conductive spiral shield) of Lee et al to connect the vacuum vessel and conductive plate of Tanaka et al is to air-tightly connect and electrically couple the vacuum vessel and conductive plate.

The motivation for using screws to attach the conductive plate to the vacuum walls is to provide the required means of holding the conductive plate to the walls of the vacuum vessel, but not disclosed by Tanaka et al. Screws and bolts are commonly used in the art to removably attach parts.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to add a heater to the conductive plate, and use conductive O-ring and screws to electrically couple the conductive plate to the vacuum vessel walls.

Applicant cannot rely upon the foreign priority papers to overcome this rejection because a translation of said papers has not been made of record in accordance with 37 CFR 1.55. See MPEP § 201.15.

6. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being obvious over Yuda et al, US Patent 6,663,715 B1, in view of Kasai et al, US Patent 6,436,193 B1 and Lee et al US Patent 6,436,193.

Yuda et al teaches: a vacuum vessel 1 separated into two chambers, the first one 22 of the two chambers containing a radio-frequency electrode 2; and the second one of the two chambers containing a substrate support mechanism 3 for mounting a substrate 4 wherein said vacuum vessel is separated by an electrically conductive partitioning section 5. The partitioning section includes: a plurality of through-holes 13 to allow communication between the first chamber and second chamber; and an interior space 7 for receiving a reactive gas, the interior space separated from the first chamber and communicating with the second chamber through a plurality of diffusion holes 16.
(Entire document)

Yuda et al differs from the present invention in that Yuda et al does not teach a heater for heating the electrically conducting partitioning section, or that the partitioning section is mounted to the vacuum vessel using screws and an electrically conductive spiral shield to achieve electrical contact.

Kasai et al teaches that showerheads (i.e. partitioning section) can be heated (column 10 lines 12-18).

Lee et al teaches that conductive O-rings 62 are used to electrically couple an electrode to the walls of the vacuum chamber. (Entire document)

Screws are well known in the art and commonly used to attach parts together.

The motivation for adding a heater to the partition of Yuda et al as taught by Kasai et al is to control the temperature of the processing gas to prevent condensation of the processing gas or heat the processing gas to the desired temperature prior to the gas entering the processing vessel.

The motivation for using the electrically conductive O-rings (electrically conductive spiral shield) of Lee et al to connect the vacuum vessel and conductive plate of Yuda et al is to air-tightly connect and electrically couple the vacuum vessel and conductive plate.

The motivation for using screws to attach the conductive plate to the vacuum walls is to provide the required means of holding the conductive plate to the walls of the vacuum vessel, but not disclosed by Yuda et al. Screws and bolts are commonly used in the art to removably attach parts.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to add a heater to the conductive plate, and use conductive O-ring and screws to electrically couple the conductive plate to the vacuum vessel walls.

Double Patenting

7. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA

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1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

8. Claims 1-3 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-6 of U.S. Patent No. 6,245,396 B1 (Nogami), in view of Kasai et al, US Patent 6,436,193 B1 and Lee et al US Patent 6,436,193.

Nogami teaches: a vacuum vessel separated into two chambers, the first one of the two chambers containing a radio-frequency electrode; and the second one of the two chambers containing a substrate support mechanism for mounting a substrate wherein said vacuum vessel is separated by an electrically conductive partitioning section. The partitioning section includes: a plurality of through-holes to allow communication between the first chamber and second chamber; and an interior space for receiving a reactive gas, the interior space separated from the first chamber and communicating with the second chamber through a plurality of diffusion holes. (Claims 1-6)

Nogami differs from the present invention in that Nogami does not teach a heater for heating the electrically conducting partitioning section, or that the partitioning section is mounted to the vacuum vessel using screws and an electrically conductive spiral shield to achieve electrical contact.

Kasai et al teaches that showerheads (i.e. partitioning section) can be heated (column 10 lines 12-18):

Lee et al teaches that conductive O-rings 62 are used to electrically couple an electrode to the walls of the vacuum chamber. (Entire document)

Screws are well known in the art and commonly used to attach parts together.

The motivation for adding a heater to the partition of Nogami as taught by Kasai et al is to control the temperature of the processing gas to prevent condensation of the processing gas or heat the processing gas to the desired temperature prior to the gas entering the processing vessel.

The motivation for using the electrically conductive O-rings (electrically conductive spiral shield) of Lee et al to connect the vacuum vessel and conductive plate of Nogami is to air-tightly connect and electrically couple the vacuum vessel and conductive plate.

The motivation for using screws to attach the conductive plate to the vacuum walls is to provide the required means of holding the conductive plate to the walls of the vacuum vessel, but not disclosed by Nogami. Screws and bolts are commonly used in the art to removably attach parts.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to add a heater to the conductive plate, and use conductive O-ring and screws to electrically couple the conductive plate to the vacuum vessel walls.

9. Claims 1-3 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-6 of U.S. Patent No. 6,427,623

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B2 (Ko), in view of Kasai et al, US Patent 6,436,193 B1 and Lee et al US Patent 6,436,193. The obvious rejection of Ko in view of Kasai et al and Lee et al is discussed above.

10. Claims 1-3 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-24 of copending Application No. 09/863,338 (Xu et al) in view of in view of Kasai et al, US Patent 6,436,193 B1 and Lee et al US Patent 6,436,193. The obvious rejection of Xu et al in view of Kasai et al and Lee et al is discussed above.

This is a provisional obviousness-type double patenting rejection.

11. Claims 1-3 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-21 of copending Application No. 09/862,458 (Tanaka et al) in view of in view of Kasai et al, US Patent 6,436,193 B1 and Lee et al US Patent 6,436,193. The obvious rejection of Tanaka et al in view of Kasai et al and Lee et al is discussed above.

This is a provisional obviousness-type double patenting rejection.

Conclusion

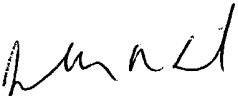
12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The cited art teaches the technological background of the invention.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrie R. Lund whose telephone number is (571) 272-1437. The examiner can normally be reached on Monday-Thursday (6:30 am-6:00pm).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on (571) 272-1439. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Jeffrie R. Lund
Primary Examiner
Art Unit 1763

JRL

9/28/04